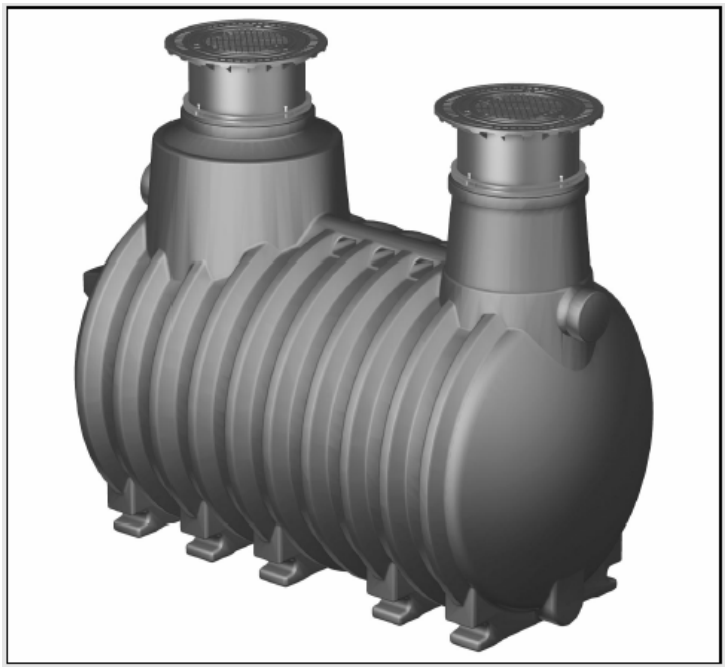
INSTALLATION AND OPERATING INSTRUCTIONS

KESSEL – Oil / Fuel separator
KESSEL – Coalescence separator

PE Separators according to Euro-norm EN 858 NG 3-20

KESSEL – Oil / Fuel separator **KESSEL – Coalescence separator** **Accordino to EN 858** **NG 3-20 for underground installation**	**99403-99420** **(.10/.15/.30/.40) (B/D)** **99503-99515** **(.10/.15/.30/.40) (B/D)**



Product advantages

- Easy on-site mobility without the need for heavy machinery
- Simple and quick installation and hook up
- Recycable material
- Seamless body due to monolith construction – 100% watertight

The installation and service of this unit should be carried out by a licensed professional servicer Company - Telephone No.	

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(Subject to technical amendment

KESSEL

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1. Safety Precautions

Dear Customer,

Before the KESSEL Oil / Fuel or Coalescence separator is installed and placed in operation please carefully read and follow all of the instructions contained in this Installation, Maintenance and User's Manual.
Upon delivery of the KESSEL separator please thoroughly inspect the separator to make sure that it has not been damaged during shipping. In case damage has occurred to the separator, please follow the instructions listed in the ‚Guarantee' section of this user's manual.

By installation, use, maintenance and repair of this unit please follow all appropriate DIN / VDE / DVGW safety precautions and accident prevention guidelines. Also please follow any local safety precautions and accident prevention guidelines established in your area. Also please observe the following:

- BGV C22 (formerly VBG 37)
- DIN 4124 - Safety precautions for excavations / trenches
- DIN EN 1610 - Standard procedures for the installation of drainage piping

BGR 117 (formerly ZH1/77) - Standard procedures for working in confined spaces
Do not allow any type of wastewater into the separator which could hinder the proper separation between oils / fuels and water.

ACCESS:
NO SMOKING! Smoking is strictly prohibited near or around the separator at all times !
All sources of ignition or sparks are prohibited near or around the separator at all times !

SLIPPERY WHEN WET! Take caution when standing / walking near the separator. During disposal, cleaning and maintenance the surrounding area can become extremely slippery due to spilled oil / fuel.

SEPARATOR AREA REGULATIONS:

- ✗ No access of the separator for unauthorized personnel
- ✗ The location of the separator should be chosen carefully as to allow sufficient access for maintenance, inspection, repair and disposal of the separator.
- ✗ The wastewater in the separator can contain skin irritants. After coming in contact with wastewater or the separator itself, it is important to wash, clean and disinfect all skin and clothing which has been contaminated.
- ✗ All personnel having anything to do with the separator should have a sound knowledge of the above safety precautions.

Helpful Hints:

1. Manhole covers on top of fuel separators must not be screwed or locked on.
2. Manhole covers on top of fuel separators must not have ventilation ports.
3. All drains connected to the separator must not have any type of odour trap.
4. All drains connected to the separator should be equipped with sludge traps.
5. Wastewater must not be pumped into the separator, it must be gravity fed.
6. Detergents and cleaners used to clean the separator must not be emulsifiable, they should be cleaners which separate quickly with water (contact detergent / cleaner manufacturer for additional details).

2. General

2.1 Application

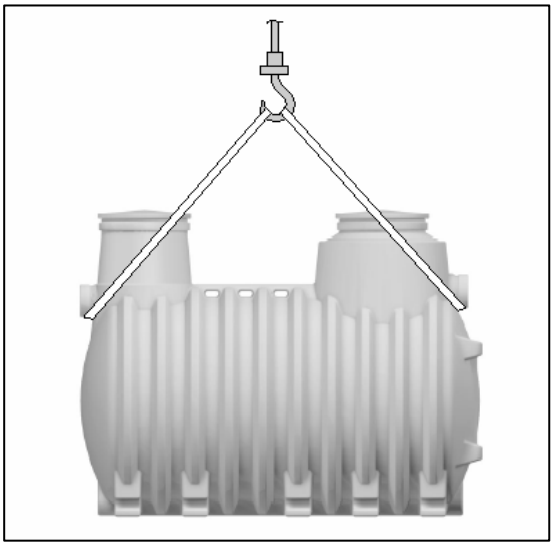
The KESSEL oil / fuel and coalescence separators are of special design to aid in the prevention of oil / fuel ladened wastewater runoff from entering sewage treatment plants, lakes, rivers and public drinking water supplies. Handling of the oil / fuel wastewater at the source is the most efficient and most economical method of handling this polluted wastewater. Installation of a KESSEL oil / fuel or coalescence separator guarantees the proper treatment of the wastewater according to German and European regulations.

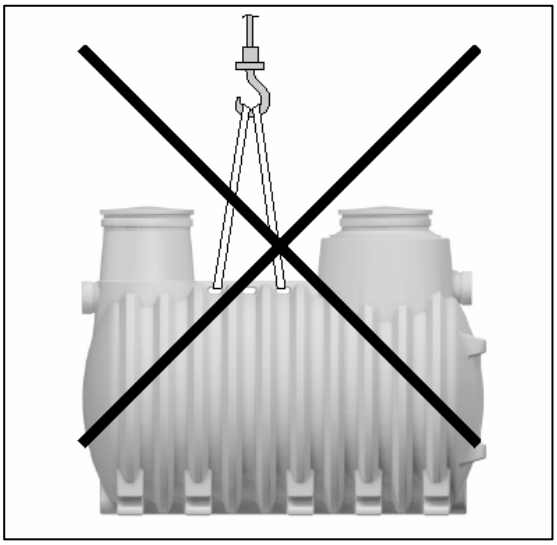
2.2 Separator description

The KESSEL oil / fuel and coalescence separators are designed for underground installation and include a separation chamber as well as an integrated sludge / sedimentation separation area. The body of the separator is manufactured from virgin Polyethylene whose wax-like smooth finish requires that no other additional coatings are necessary. The upper sections of the separators are manufactured from Duroplast or Polypropylene. The separators are designed for underground installation at various pre-specified depths and are available with Class B (12.5 ton) or Class D (40.0 ton) load manhole covers. Additional technical information concerning the separators can be found on the nameplate attached to all units as well as the technical specification sheet included in this manual.

3. Transport and Storage

3.1 Transport





Transportation of the KESSEL separator should be handled only by a transporter who has the proper knowledge, equipment and employees to handle such a product. During transport the separator must be firmly fixed into position and must not be allowed to move or shift in place. It also must be protected from other objects coming in contact with the separator during transport.

If and when the separator is lifted it is important to follow the following correct procedures: The separator is not to be lifted with the use of steel cables or chains. Proper equipment are heavy duty cloth or hemp straps designed to handle the corresponding loads. The separator should be lifted by placing the proper straps beneath the inlet and outlet of the separator as seen in the illustration. Do not lift the separator by the small holes between the two manholes covers as illustrated on this page. In instances where a forklift is used, secure the separator to the forklift with appropriate cloth / hemp securing straps.

3.2 Storage

In cases where the separator needs to be temporarily stored before installation, it is important that the separator is placed on firm level ground and in an area where it is protected from coming in contact with other objects. Storing the separator outdoors will not cause any problems.

4. Installation

4.1 Installation example: KESSEL Oil / Fuel Separator

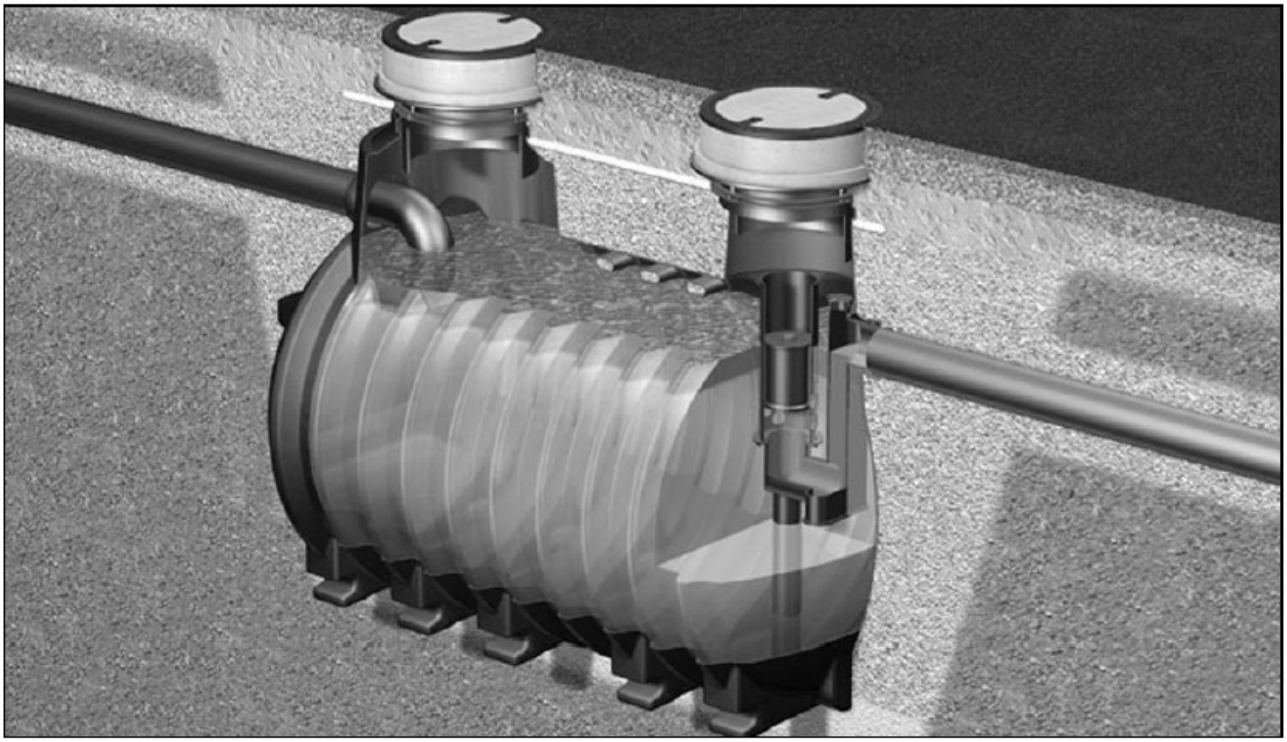
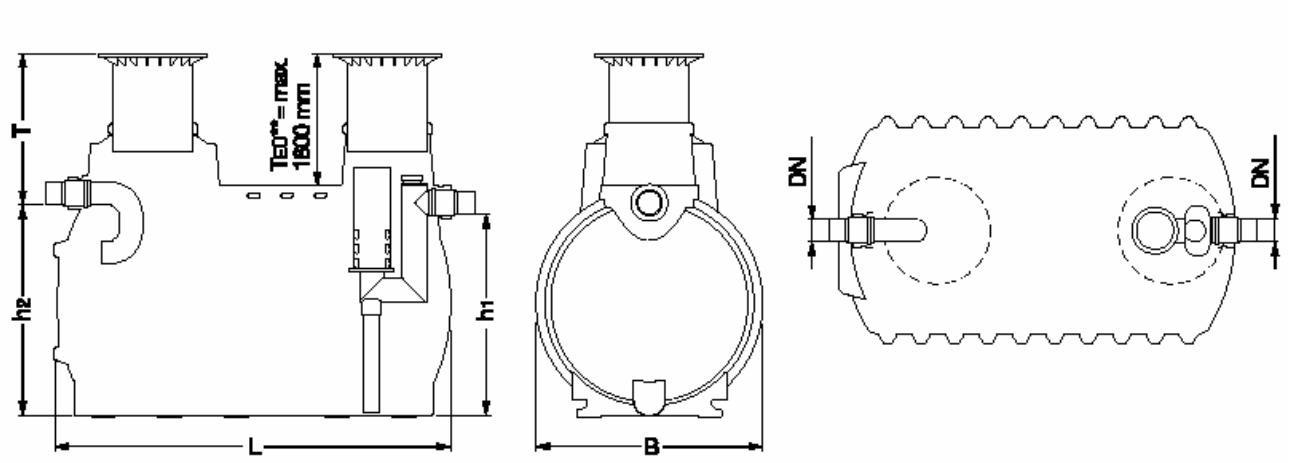


Illustration shows oil / fuel separator with class D cover

4. 2 Dimensioned drawing



NG	Sludge trap actual	Max. sludge trap height	Sludge trap equi-valent	DN	L/B in mm	T in mm min./ max.	h2 / h1	Sepa-rator	Oil collec-tion	Max. oil layer in mm	Total weight / volume	Art. N°
3	1000 l	650 mm	2000 l	150	2080 / 1200	950 1280	1100 1070	900 l	300 l	130	331 kg 1800 l	Class A/B / Class D 99403.10B 99403.10D
3-6	3000 l	1100 mm	6000 l	150	2300 / 1760	1000 1330	1630 1560	1350 l	450 l	170	401 kg 4800 l	99406.38 B 99406.30D
3-10	1500 l	650 mm	3000 l	150	2860 / 1200	950 1280	1100 1070	1170 l	300 l	130	403 kg 2500 l	99410.15B 99410.15 D
6-15	3000 l	1100 mm	3000 l	200	2300 / 1760	1000 1330	1630 1600	1350 l	450 l	170	401 kg 4800 l	99415.30B 99415.30D
10-20	4000 l	1100 mm	8000 l	200	3060 / 1760	1000 1330	1630 1600	1900 l	600 l	170	473 kg 5700 l	99420.40B 99420.40D

4. Installation

4.3 Installation example: KESSEL Coalescence separator

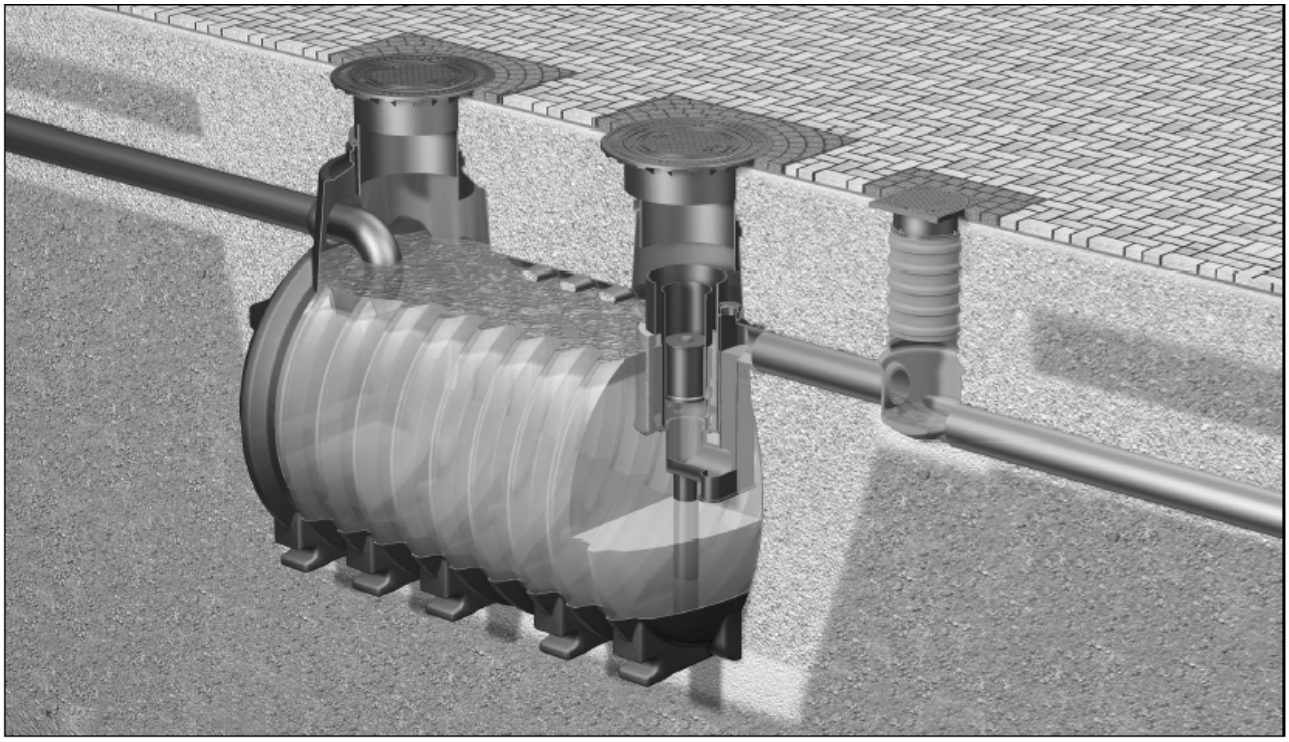
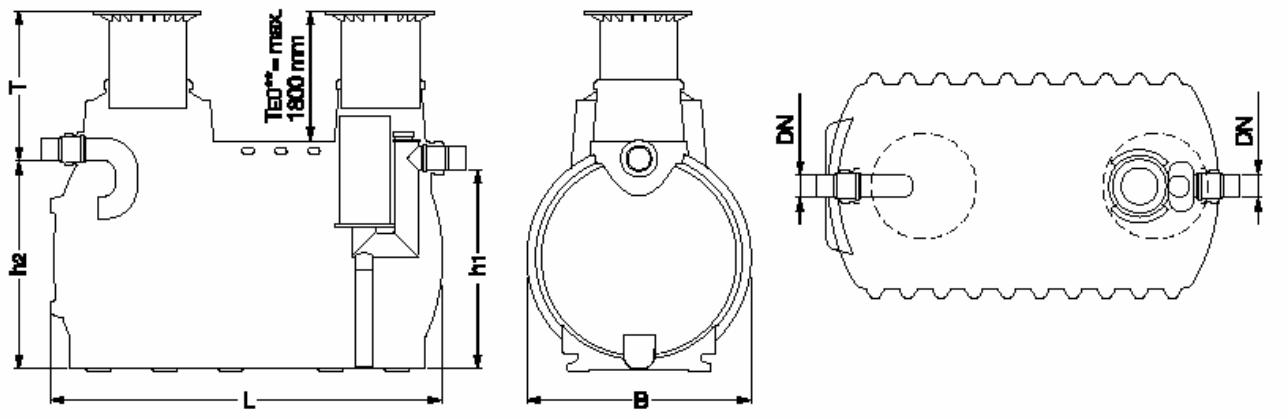


Illustration shows coalescence separator with class B cover

4.4 Dimensioned drawing



NG	Sludge trap actual	Max. sludge trap height	Sludge trap equi-valent	DN	L/B in mm	T in mm min./ max.	h2 / h1	Sepa-rator	Oil collec-tion	Max. oil layer in mm	Total weight / volume	Art. N°
3	1000 l	650 mm	2000 l	150	2080 / 1200	950 1280	1100 1030	900 l	300 l	130	331 kg 1800 l	Class A/B / Class D 99503.10B 99503.10D
3-6	3000 l	1100 mm	6000 l	150	2300 / 1760	1000 1330	1630 1560	1350 l	450 l	170	401 kg 4800 l	99506.30 B 99506.30D
3-10	1500 l	650 mm	3000 l	150	2860 / 1200	950 1280	1100 1030	1170 l	300 l	130	403 kg 2500 l	99510.15B 99510.15 D
3-10	3000 l	1100 mm	3000 l	200	2300 / 1760	1000 1330	1630 1560	1350 l	450 l	170	401 kg 4800 l	99510.30B 99510.30D
3-15	4000 l	1100 mm	8000 l	200	3060 / 1760	1000 1330	1630 1560	1900 l	600 l	170	473 kg 5700 l	99515.40B 99515.40D

4. Installation

4.5 Installation area

When the shipment arrives, please inspect it immediately for damage which may have been caused during transport / shipping!

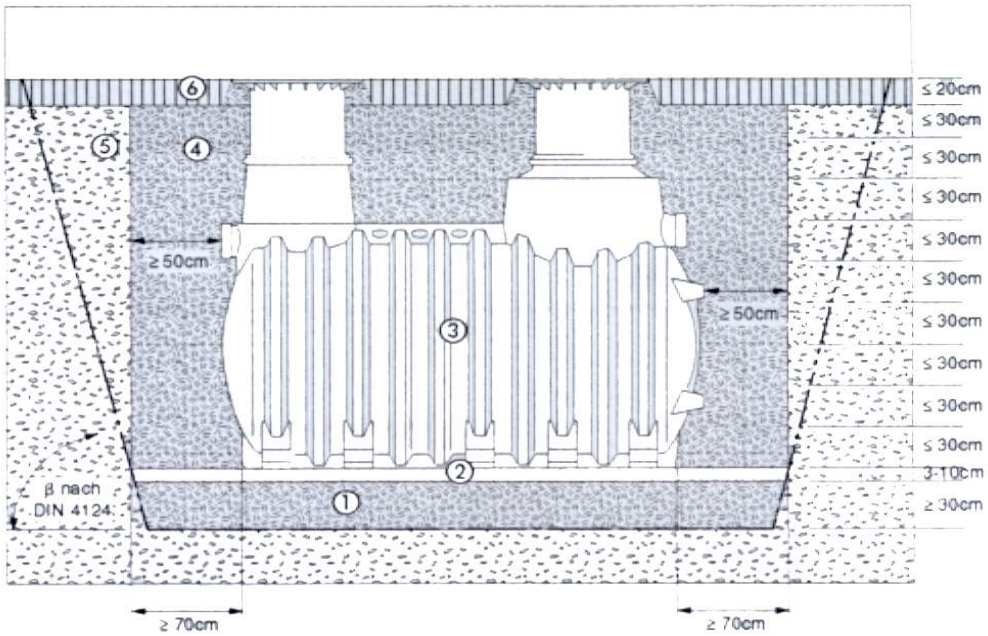
The inlet of the KESSEL separator must be installed below the frost level. This can be achieved by the use of the vertically adjustable upper sections. The manhole covers for the upper sections are available in load classes B (12.5 ton) and D (40.0 ton) and meet EN 124 standards.

Note - before installation, make sure that no dirt / grit / debris exits between any of the sealing areas (gaskets). Also check the entire separator to make sure that no cracks, holes or dents have occurred during transportation or storage.

Before installation, be sure to determine the maximum groundwater level at the site of installation to make sure that groundwater will never rise higher than the bottom of the outlet.

1. The excavation in which the separator is to be installed must be level and capable of handling the appropriate loads. The base of the excavation should be comprised of a 25 cm layer of frost free gravel covered by a 3 to 10 cm layer of sand or fine gravel.
2. Before installation, remove the float switch chamber (coalescence & float switch chamber if a coalescence separator is being installed) and store in a safe place. Place the separator in the prepared excavation hole. Make sure the separator is level and rests at the appropriate elevation. Fill the separator with fresh cold water to the outlet level.
3. The excavation should now be backfilled with non-binding material such as sand, or fine gravel. Backfill only the main body of the separator, do not backfill around the upper sections. The backfill should be firmly compacted at incremental levels (approx 30 cm). **For load class D (40.0 ton) situations, the upper section and manhole cover of the underground separator must be poured into a steel reinforced concrete apron for proper load support. Additional information regarding this load class D support is available from KESSEL**!!
4. Connect the inlet and outlet of the separator to the drainage piping.
5. Install and adjust the upper section(s) of the separator to the desired level and secure with the included clamp ring (clamp ring will rest on the chamber itself). Final upper section level adjustments can be made by using the elevation adjustment screws located on the clamp ring. Back fill the remaining area around the upper sections with sand or fine gravel (leave space for a 15 cm concrete load supporting apron (steel reinforced) if installed Load Class D – 40.0 ton covers)

NOTICE - Take care not to place any loads on top of the manhole covers and upper sections of the separator until the separator is completely backfilled and (if required) the load supporting concrete apron around the manhole covers has completely cured.



5. Commissioning

5.1 Separator commissioning
Before the separator is put into service please make sure that:

- The separator is completely clean, including inlet and outlet, and that the interior of the chamber is free of dirt and debris.
- The cleaned separator is completely filled with clean cold water up to the outlet (this step should already have taken place in the 'Installation' phase of this user's manual).
- Re-insert the float switch chamber (coalescence & float switch chamber if a coalescence separator is being installed).
- Replace manhole covers (manhole covers MUST NOT be screwed or fastened to the separator. Manhole cover should simply rest on the upper sections of the separator).

5.2 Commissioning participants
The commissioning of the separator is usually handled by a tradesman although this can be handled by a KESSEL contractor or KESSEL employee if desired.

1) The following people should be on hand during the commissioning:
- Building contractor representative
- Plumber / tradesman who will be maintaining the separator
- Building maintenance personnel
- Disposal company who will be handling the disposal account

2) Commissioning preparation
- Separator is completely filled with clean water

3) Commissioning
- Separator to be checked for water tightness and for proper functionality
- Contents of this user's manuals to be discussed with those present

4) Transfer of this manual to the appropriate personnel

6. Separator Contents Disposal

The separator should be emptied (disposal) when the oil / fuel storage capacity has reached approximately 4/5's (80%) of its capacity or every 6 months, whichever is sooner.

In order for a separator to function as designed, it is very important that the separator is emptied at regular intervals as described above. It is recommended that a licensed disposal company is contracted to handle the entire disposal procedure.

Disposal procedure

- Remove manhole covers.
- Remove the float switch chamber (coalescence & float switch chamber if disposing a coalescence separator). Rinse / clean the filter with fresh water and inspect for damage.
- Place disposal truck's suction hose inside separator and remove entire contents of the chamber (sludge and fuel / oil).
- Rinse and clean interior walls of chamber. Remove any solids or particulates.
- Remove remaining contents inside separator.
- Re-insert the float switch chamber (coalescence & float switch chamber if disposing a coalescence separator).
- Refill entire separator with cold clean water.
- Clean and grease all accessible seals. Replace seals if necessary.
- Replace manhole covers.

7. Maintenance

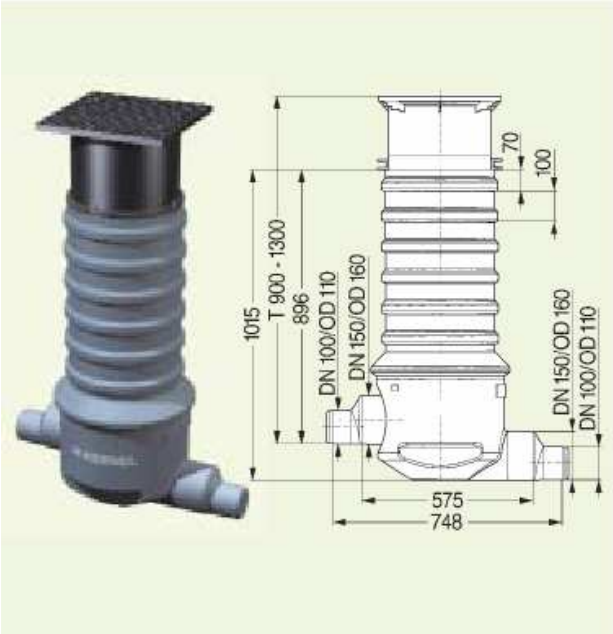
Before the separator is placed into service and at regular intervals thereafter (minimum two times per year), it is important that:

1. The interior and exterior walls of the separator are thoroughly cleaned and checked for damage. Inlet and outlet equipment should also be checked.
2. All inspection and maintenance work should be logged into this user's manual. Information concerning each disposal should also be kept on record.

Please take care that:

- This Installation, Service and Maintenance Guide is kept in a safe location where it is always available.
- The disposal of the separator is only carried out by a certified company.
- Safety precautions listed in this manual and all other relevant safety precautions are followed at all times.

8. Accessories and Replacement Parts



KESSEL - polyethylene sampling chamber, diameter = 400 mm

For underground installation.

DN 100 / 150 inlets and outlets (cut on-site to required size), connects to plastic pipe based on DIN 19534, 400 mm interior diameter sampling chamber, vertically adjustable upper section with clamp ring, covers available in Class A (1.5 ton), Class B (12.5 ton) and Class D (40.0 ton) load classes, covers are lockable and odor tight, inlet to outlet elevation drop - 120 mm.

Manufacturer: KESSEL

Inlet depth T (mm)	Inlet & Outlet sizes DN	OD	Load Class	Article #
900 - 1300	100 / 150	110 / 160	A (1.5 ton)	915 880 A
900 - 1300	100 / 150	110 / 160	B (12.5 ton)	915 880 B
900 - 1300	100 / 150	110 / 160	D (40.0 ton)	915 880 D

For shallower installation depth, the necessary length of the upper section of the sampling chamber is simply sawed off, gasket is replaced and upper section inserted into gasket / sampling chamber body.

KESSEL - polyethylene sampling chamber, diameter = 800 mm

For underground installation.

Connects to SML pipe based on DIN 19522,
880 mm interior diameter sampling chamber, vertically adjustable and tiltable upper section with clamp ring, manhole entry clearance - 610 mm, covers available in Class A (1.5 ton), Class B (12.5 ton) and Class D (40.0 ton) load classes, covers are odor tight, manhole cover removal tool included.

Inlet depth T (mm)	Inlet & Outlet sizes DN	OD	Article # Class A / B	Class D
450 - 950	150	160	915 760/80 B	915 760/80 D
620 - 1120	150	160	915 762/80 B	915 762/80 D
620 - 1120	200	200	upon request	upon request

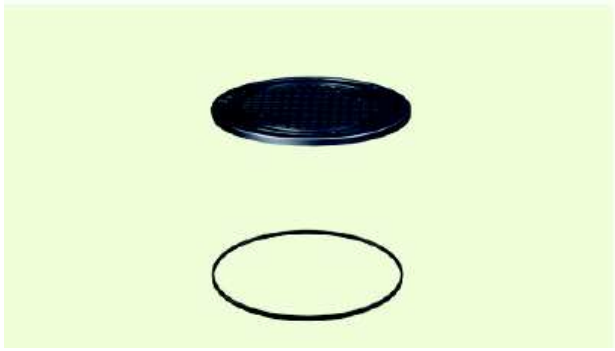
For shallower installation depths, the necessary length of the upper section is simply sawed off.

KESSEL - polyethylene extension section

400 mm extension section complete with sealing gasket.

Article #
917 402

8. Accessories and Replacement Parts



KESSEL-Cast iron manhole cover
for Euro-Norm 124 underground grease separator.
Includes gasket and screws.

Load Class	Article #
class B	916802
class D	916803

KESSEL-Replacement gasket
for manhole cover

Article #
917 101

KESSEL - alarm unit
For monitoring oil/fuel level inside the separator
(see pages 10 and 11).

Article #
917 801

KESSEL - alarm unit
Alerts when outlet of separator is blocked or if inlet flows are exceeding the separators capacities; (see pages 10 and 11).

Article #
917 802

KESSEL - Oil/fuel direct disposal device
(see pages 10 and 11).

Article #
917 803

KESSEL - Sludge/sediment direct disposal device
(see pages 10 and 11).

Article #
917 804

KESSEL - Coalescence filter insert

Article #
917 805

9. Guarantee

1. In the case that a KESSEL product is defective, KESSEL has the option of repairing or replacing the product. If the product remains defective after the second attempt to repair or replace the product or it is economically unfeasible to repair or replace the product, the customer the has the right to cancel the order / contract or reduce payment accordingly. KESSEL must be notified immediately in writing of defects in a product. In the case that the defect is not visible or difficult to detect, KESSEL must be notified immediately in writing of the defect as soon as it is discovered. If the product is repaired or replaced, the newly repaired or replaced product shall receive a new warranty identical to that which the original (defective) product was granted. The term defective product refers only to the product or part needing repair or replacement and not necessarily to the entire product or unit. KESSEL products are warranted for a period of 24 months. This warranty period begins on the day the product is shipped from KESSEL to its customer. The warranty only applies to newly manufactured products. Additional information can be found in section 377 and 378 of the HGB.

2. Wear and tear on a product will not be considered a defect. Problems with products resulting from improper installation, handling or maintenance will also not be considered a defect.

01.01.2002

10. Separator Characteristics

KESSEL

Type _____

Production number / production year _____

Weight / kg _____ length x width X height _____

EN _____ Approval _____

Sludge trap volume / l _____

Oil storage volume / l _____

Control stamp _____ Material _____

(Accessories) _____

This unit has been checked for watertightness to be sure that it is fully operational before leaving the factory.

Date Name of examiner

Important Contacts / Info

Separator Type _____

Day / Hour _____

Project description /
Building services supervisor _____
Address _____
Telephone / Fax _____

Builder _____
Address _____
Telephone / Fax _____

Planner _____
Address _____
Telephone / Fax _____

Contracted plumbing company _____
Address _____
Telephone / Fax _____

Commissioning no. KESSEL
System operator / owner _____
Address _____
Telephone / Fax _____

Other remarks _____

The system operator, and those responsible, were present during the commissioning of this system.

_____
Place and Date

Everything for drainage

- Backwater valves and cleanouts
- Polymer and cast iron drains
- Volatile liquid traps
- Lifting stations, pumps, warning and control units
- Rainwater management systems
- Grease separators
- Oil/fuel and coalescence separators
- Inspection chambers
- Custom projects for industrial applications